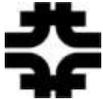


G4Validation: Status and plans

Geant4 Collaboration Meeting at SLAC
September 19th - 23rd, 2011

Hans Wenzel

Fermilab 

20th September 2011

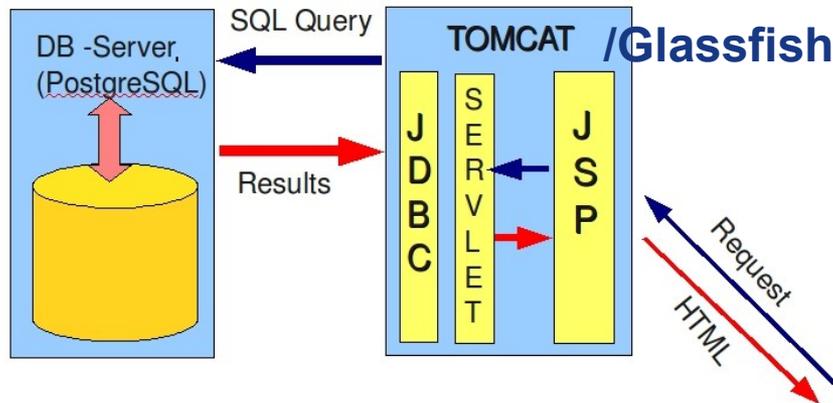
Developers:

Jennifer Karkoska
Andreas Schaelicke
Hans Wenzel
Julia Yarba

Outline:

- Introduction
- Status
- Plans

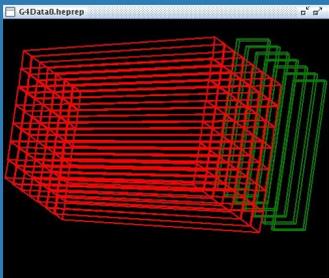
Introduction



G4Validation consists of:

- database containing:
 - Images, tags, descriptions and references to experimental data
- Web Application on Tomcat or glassfish:
 - To display the data
 - To allow experts to upload, edit, delete
- multiple file upload Application.

Homepage



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http://g4jsp.ifh.de:8080/G4HadronicValidation/

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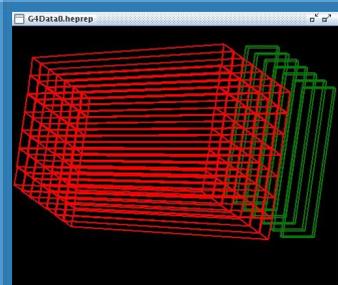
Welcome to the Geant4 Validation Repository
Please make your selection from the menu on the top

Database statistics	
Number of test setups	15
Number of test results	7301
Registered users	8

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Hadronic validation



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List of hadronic Tests

- Hadrcap
- Ndata
- Test301aea
- placeholder
- simplifiedCalo
- test30
- test35
- test45
- test47
- 9.2.ref08
- 9.4.ref00
- 9.4.ref01
- 9.4.ref02
- geant4-9.2.ref08
- geant4-9.3.ref09
- hadr-cascade-V09-03-66
- test48

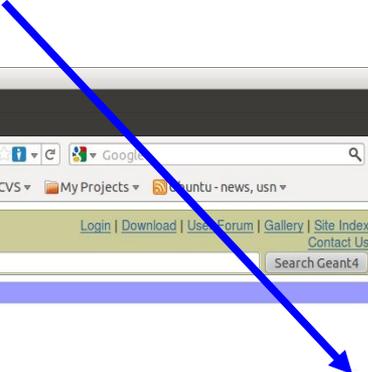
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Display a test

Search Button



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http://g4jsp.ifh.de:8080/G4HadronicValidation/G4ValHAD.jsp?TID=50

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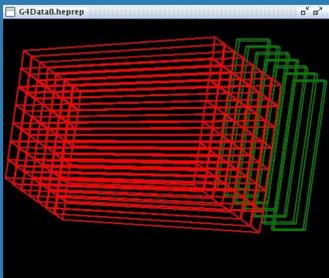
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Name of the Test:	test47
Responsible:	Sunanda Banerjee, J. Yarba (Fermilab)
Description:	Intermediate energy validation is done by comparing Monte Carlo predictions vs experimental data.

Geant4 Version:	9.2.ref08
Observable:	Inclusive KE distribution
Reaction:	$\pi^+ + u \rightarrow p + X$

Test Conditions	
Name	Description
last-modified	2011-06-09 10:44:01 CDT
Target	Uranium
Particle	π^+
Energy	5.0 GeV/c
Bertini Cascade Version	9.3.b01
Bertini Cascade Version	V09-02-05
Bertini Cascade Version	V09-02-08
Angle	89 deg
Reference	T. Abbott et al, Phys.Rev. D45, 3906
Reference	Yu.D.Bayukov et al, ITEP-148-1983, Sov. J. Nucl. Phys. 42, 116
Score:	passed
Type:	expert

Results	
MC/Data	$\pi^+ + u \rightarrow p + X$ at 5.00 GeV ($\theta = 89.0^\circ$)
	Legend: (9.3.b01), (V09-02-05), (V09-02-08)
	Plot of Kinetic Energy of proton (GeV) vs MC/Data ratio. The ratio is approximately 1.0 across the energy range from 0.06 to 0.24 GeV.



Searching

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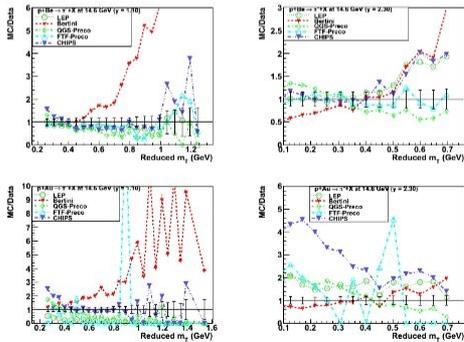
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id	g4version	reaction	observable	Target	CHIPS	Bertini Cascade Version	Geant 4 Version	FTF-Precor	Particle	tag	re
7278	9.4.ref01	p+Be, p+Au -> pi- +X	reduced m_T spectrum	Be, Au	9.4.ref01			9.4.ref01	p		y
7260	9.4.ref01	p+C -> p+X	kinetic energy of secondary proton	C	9.4.ref01				p		
7262	9.4.ref01	p+C, p+U -> n+X	kinetic energy of secondary neutron	C, U	9.4.ref01			9.4.ref01	p		
7265	9.4.ref01	p+U -> p+X	kinetic energy of secondary proton	U	9.4.ref01			9.4.ref01	p		
7268	9.4.ref01	p+Cu->K- +X	reduced m_T spectrum	Cu	9.4.ref01			9.4.ref01	p		y
7271	9.4.ref01	p+Cu->K+ +X	reduced m_T spectrum	Cu	9.4.ref01			9.4.ref01	p		y
7275	9.4.ref01	p+Cu->p+X	reduced m_T spectrum	Cu	9.4.ref01			9.4.ref01	p		y
7279	9.4.ref01	p+Be, p+Au -> pi+ +X	reduced m_T spectrum	Be, Au	9.4.ref01			9.4.ref01	p		y
7284	9.4.ref01	pi- +C, pi- +Cu, pi- +Pb, pi- +U -> n+X	kinetic energy of secondary neutron	C, Cu, Pb, U	9.4.ref01			9.4.ref01	pi-		

Test
g4version *
Binary *



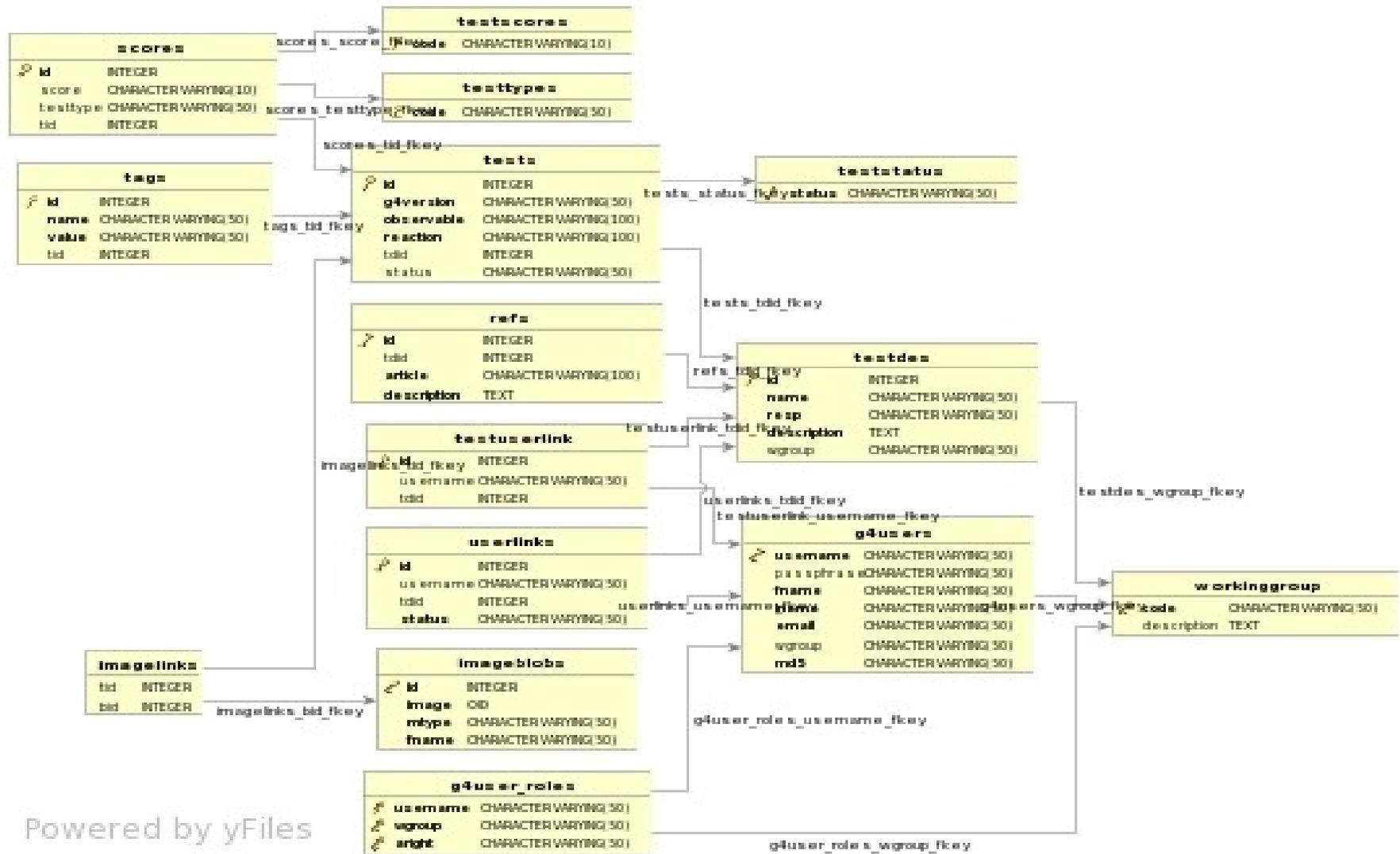
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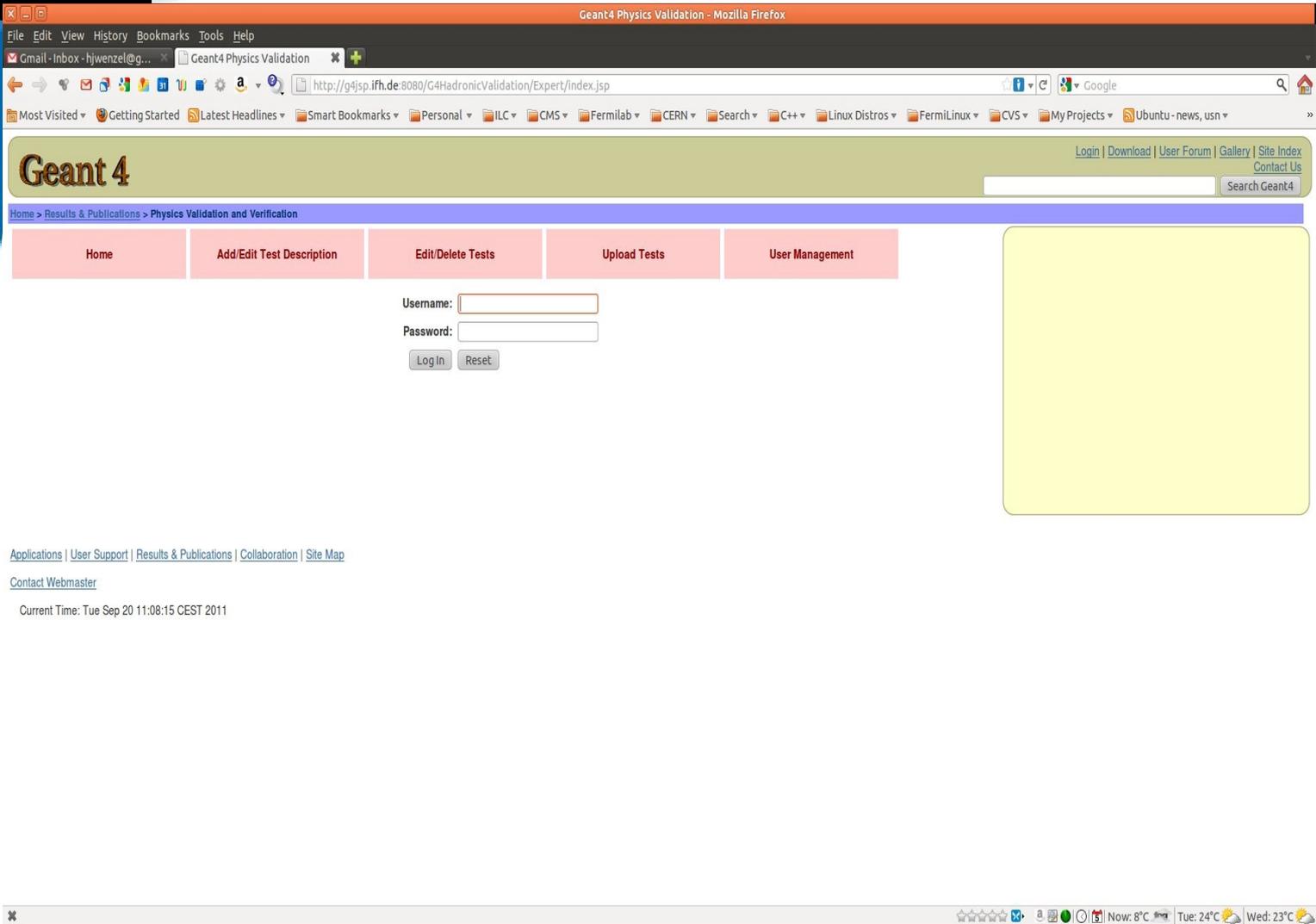
Current Time: Tue Sep 20 11:07:23 CEST 2011

Now: 8°C Tue: 24°C Wed: 23°C

Data Base schema



Expert page



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Now: 8°C Tue: 24°C Wed: 23°C

Status

In the past weeks we concentrated on cleaning up refactoring and packaging

→ this will make further development easier:

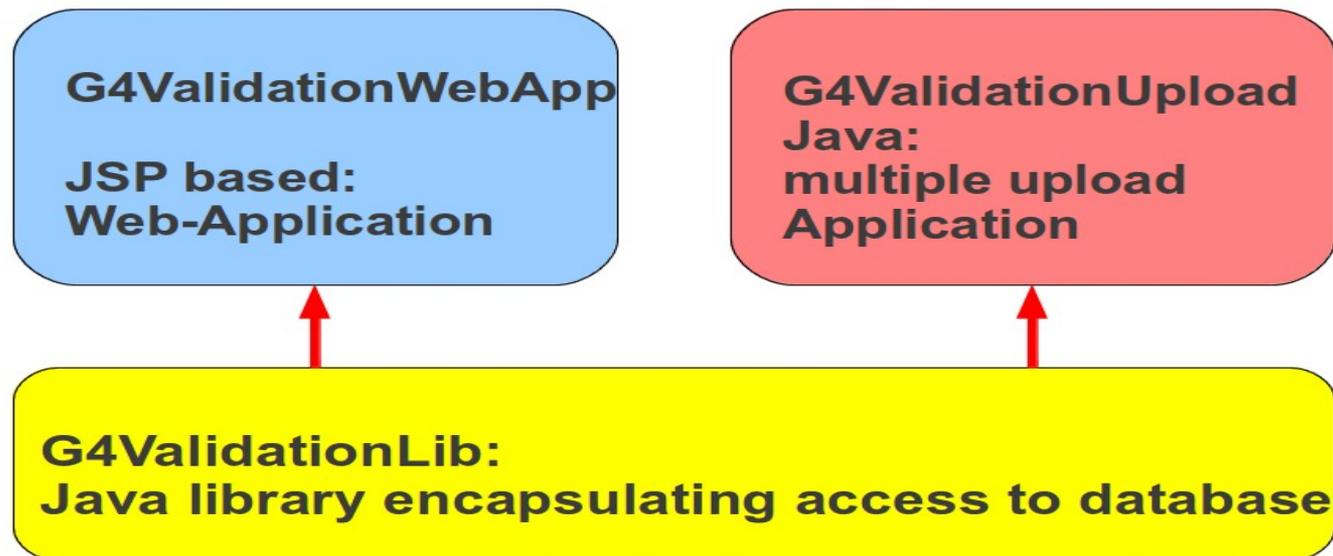
- Postgres Database and Web application are now available at Fermilab and DESY Zeuthen using different server (db and webapp) configurations:
- DESY:
<http://g4jsp.ifh.de:8080/G4HadronicValidation/>
- FNAL:
<http://g4validation.fnal.gov:8080/G4HadronicValidation/>
- Prototype application that shows some features that we are developing for g4validation (Summer student Jennifer Karkoska) :

(zooming, better search features etc.)

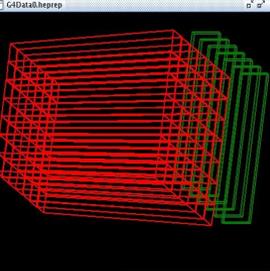
<http://g4validation.fnal.gov:8080/DRImageWebApp/>

Status (cont.)

- Java Library to connect to db, JSP Web-Application, Multiple File upload java application are now clearly separated and packaged.



Plans

- 
- Provide multiple file upload application using xml description
 - Improve performance/appearance of Web Application
 - Implement new feature zooming, better search features etc. see:
<http://g4validation.fnal.gov:8080/DRImageWebApp/>
 - Import experimental data into database and create plots on the fly allow for overlays comparisons etc.
 - Database schema defined.
 - Jfreechart seems to be a good plotting tool.
 - Evaluate frameworks (JSF) and different Server Configurations (e.g. control db access, security..)